

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2006		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5					R-1 ITEM NOMENCLATURE 0604558N/New Design SSN (VIRGINIA Class Design Development)			
COST (\$ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Total PE Cost	156.806	175.567	169.580	206.013	150.702	145.191	177.015	
1947/VIRGINIA Class HM&E Development	96.828	97.264	115.132	151.648	106.245	108.471	134.064	
1950/VIRGINIA Class Combat Systems Dev	48.412	42.228	47.885	47.941	41.706	33.933	40.150	
2887/SSN Combat Sys Tech Insert/Refresh	5.469	0.000	0.000	0.000	0.000	0.000	0.000	
3062/Submarine Multi Mission Team Trainer	3.686	2.575	6.563	6.424	2.751	2.787	2.801	
9386/SSN Development - SBIR Phase III Research	2.411	0.000	0.000	0.000	0.000	0.000	0.000	
9999 / Congressional Plus-ups (FY06)		33.500						
Quantity of RDT&E Articles								
Defense Emergency Response Funds (DERF): NOT APPLICABLE								
<p>A. (U) Mission Description and Budget Item Justification: The U.S. Navy must maintain a submarine fleet that is of sufficient capability and numbers to defend American interests. The VIRGINIA Class Submarine, formerly the New Attack Submarine (New SSN), is being designed to fulfill this need. It will counter the potential threats of the next century in a multi- mission capable submarine that has the ability to provide covert, sustained combat presence in denied waters. The primary goal of the program is to develop an affordable yet capable submarine by evaluating a broad range of system and technology alternatives, and pursuing cost reduction, producibility improvement, and technical risk management. This Program Element (PE) provides the technology, prototype components, and systems engineering needed to design and construct the VIRGINIA Class Submarine and build and its Command, Control, Communications, and Intelligence (C3I) System. This PE directly supports the following VIRGINIA Class Submarine missions: (1) covert strike warfare; (2) anti-submarine warfare; (3) covert intelligence collection/surveillance, indication and warning, and electronic warfare; (4) anti-surface ship warfare; (5) special warfare; (6) mine warfare; and (7) battle group support.</p>								
<p>(U) Project 2887: The Congressional plus-up is for MPP SBIR follow-on for Technology Insertion and refresh for VIRGINIA SSN Combat System.</p>								
<p>(U) Project 3062: The Submarine Multi-Mission Team Trainer (SMMTT) program replaces the proprietary mainframe computer system by re-hosting functions on industry standard Local Area Network (LAN) workstations. The mainframes can no longer be upgraded due to service life. The SMMTT modification applies to both the Combat Control System (CCS) trainers and the Acoustic trainers and will occur in three distinct phases. SMMTT Phase 1 and Phase 2 were funded in OPN BLI 5661 to complete the trainer-unique software offload and enables further enhancements. SMMTT Phase 3, funded in this RDT&E line will provide the architectural foundation to replace all MIL Standard hardware with commercial emulation hardware, and rehost existing proprietary based software into COTS software systems, therefore enabling platform independence and wide area network capability. The use of open architecture trainer systems allows for the continuous growth of functional flexibility, ultimately leading to employment training conducted for any submarine combat system.</p>								
<p>(U) Project 9386: The Congressional plus-up is for VIRGINIA Class SSN Development SBIR Phase III Research to establish and extend a Technology Insertion program.</p>								
<p>(U) Project 9999: Reflects a summary of FY06 Congressional Plus-Ups consisting of; Multi-Mission Module, Large Aperture Bow (LAB(Array, ShipMATES, Network Centric capability, Command & Control System lower power, Common Electronics replacement, COTS web enabled services, Open architecture technology, submarine technology insertion.</p>								

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development			PROJECT NUMBER AND NAME 1947/VIRGINIA Class HM&E DEVELOPMENT			
COST (\$ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		96.828	97.264	115.132	151.648	106.245	107.471	134.064
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A (U) Mission Description and Budget Item Justification: (U) This project encompasses all the ship system development efforts for the VIRGINIA Class Submarine and the Technology Insertion Program for reducing cost and upgrading performance of future hulls by virtue of improvements in ship and combat systems. Technology developments, training, and logistics for developmental items, and VIRGINIA Class test & evaluation are included. This project is essential to achieve balanced platform capability, affordability, and flexibility in a low rate production environment. The thrust of these efforts will be to develop and apply multiple advanced system technologies which are integrated into the design of the VIRGINIA Class Submarine. New technologies are being transitioned from industry and government research and development programs where doing so offers substantial performance improvement and/or affordability payoffs. Transition opportunities include those from the Defense Advanced Research Projects Agency (DARPA) Sensors & Payloads program. In the future, products from the newly started DARPA TANGO/BRAVO Submarine technology Program may transition to prototyping and/or applicability on VIRGINIA hulls.

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Exhibit R-2a, RDTEN Project Justification
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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME 1947/VIRGINIA Class HM&E DEVELOPMENT	
B. Accomplishments/Planned Program			
	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	63.026	75.248	63.988
RDT&E Articles Quantity			
<p>HM&E DEVELOPMENT</p> <p><u>FY05 Accomplishments:</u> Continued design, manufacturing, and qualification testing of prototype technologies and components such as: weapons stowage and handling systems and ship service turbine generator (SSTG) and ship control system block upgrades. Completed shock qualification of weapons handling module, initiate shock qualification of torpedo tube, and continue shock qualification of other major components. Continued system verification studies, tests, and analyses in support of ship design including signature, hydrodynamics, materials, and survivability analyses and tests. Provided Integrated Product and Process Development (IPPD) (Design/Build) team support at shipyards, Navy laboratories and in-house. Supported ship design and construction efforts with engineering evaluations and ship integration assessments for emergent ship design and systems development issues. Initiated development of the risk reduction technology for Conformal Acoustic Velocity Sensor (CAVES) Large Wide Aperture Array (LWAA). Continued integration of improved main seawater system component. Executed preliminary design for Multi-Mission Module. Executed feasibility demonstrations for Large Aperture Bow (LAB) Array and Automation for Reduced Manning Congressional Plus-Ups. Initiated study of benefits of damping tiles in ballast tanks. Redesigned MPU throttle control. Procured photonics head for shock qualification. Initiated resolution of ILPE Obsolescence.</p> <p><u>FY06 Plan:</u> Continue design, manufacturing, and qualification testing of prototype technologies and components such as: ship service turbine generator (SSTG). Continue system verification studies, tests, and analyses in support of ship design including signature, hydrodynamics, materials, and survivability analyses and tests. Provide Integrated Product and Process Development (IPPD) (Design/Build) team support at shipyards, Navy laboratories and in-house. Support ship design and construction efforts with engineering evaluations and ship integration assessments for emergent ship design and systems development issues. Complete shock qualification of torpedo tube system. Technology Insertions include (1) continuation of development of the composite advanced sail and (2) Risk Reduction Technologies for Conformal Acoustic Velocity Sensor (CAVES) Large Wide Aperture Array (LWAA). Continue design integration of improved main seawater system components. Complete study of benefits of damping tiles in ballast tank. Complete design of improved rudder/anchor light. Initiate shock qualification of Air Induction Diesel Exhaust (AIDE) Valve, Large Penetrations, Lock Out Trunk (LOT) and Radar. Initiate implodable volume research, and resolution of ILPE and Ship Control Obsolescence. Evaluate design modifications to replace propulsor construction and maintenance cost. Generate propulsor logistics products.</p> <p><u>FY07 Plan:</u> Continue development of (1) the Advanced Sail (including 1/4 -scale evaluation on the large scale model (LSV) CUTTHROAT and (2) Risk Reduction Technologies for CAVES Large WAA. Initiate design of CAVES Large WAA. Resolve Sea Trial Acoustic Issues. Complete design integration of improved main seawater components. Update Ship Control Simulator. Complete shock qualification of Air Induction Diesel Exhaust (AIDE) Valve, Large Penetrations, Lock Out Trunk (LOT) and Radar. Continue implodable volumes research. Initiate broad program to introduce components and technology to reduce VIRGINIA construction and supports costs.</p>			

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME 1947/VIRGINIA Class HM&E DEVELOPMENT		

B. Accomplishments/Planned Program (continued)

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	4.883	4.780	4.547	
RDT&E Articles Quantity				

ADMINISTRATIVE/ENVIRONMENTAL

FY05 Accomplishments: Continued analyses and evaluations relating to force effectiveness assessment and component performance tradeoffs. Maintained cost based approach to VIRGINIA Class submarine construction through use of IPPD's concurrent engineering processes. Continued coordination of VIRGINIA Class submarine specification at the shipbuilder. Continued cost estimating and validation of cost reduction ideas for VIRGINIA Class submarine overall design development. Continued environmental compliance and pollution prevention efforts.

FY06 Plan is to complete environmental compliance and pollution prevention under VIRGINIA design efforts.

FY06 - FY08 Plans: Continue analyses and evaluations relating to force effectiveness assessment and component performance tradeoffs. Maintain cost based approach to VIRGINIA Class submarine construction through use of IPPD's concurrent engineering processes. Continue coordination of VIRGINIA Class submarine specification at the shipbuilder. Continue cost estimating and validation of cost reduction ideas for VIRGINIA Class submarine overall design development.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	1.382	0.163	0.000	
RDT&E Articles Quantity				

LOGISTIC SUPPORT

FY05 Accomplishments: Provided government technical support services to the Design Yard for Onboard Team Trainer Master Controller (OBTT MC) developmental efforts. Provided trainer development support for VIRGINIA (NNS774) trainers at NAVAIR Orlando. Awarded the VIRGINIA OBTT MC Build 9.0/9.1 PTR Fixes to EB.

FY06 - Plan: Provide government technical support services to the Design Yard for OBTT Integration with the NSWC Ownship Motion Model. Provide technical expertise for the development of the VIRGINIA C3I OBTT at NUWC, Newport. Deliver the Diesel Front Panel Simulator to Naval Submarine School, Groton.

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B. Accomplishments/Planned Program (Cont.)				
	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	26.886	17.073	46.597	
RDT&E Articles Quantity				
TEST AND EVALUATION				
<p><u>FY05 Accomplishments:</u> Conducted shipbuilder at-sea trials and dockside testing. Planned and coordinated second shipbuilder Test and Evaluation efforts. Prepared test plans, schedules and support associated with developmental testing, conduct Operational Testing - Phase IIC, Shock Acoustic and Launcher Trials Testing, Weapons System Accuracy Trials. Conducted Hydrodynamic/ Ship Control trials, Weapons System Accuracy Test (WSAT), Acoustics Trials, Lock-Out Trunk Testing and Launcher Trials. LFT&E modeling and analysis. Continued planning for TECHEVAL and OPEVAL. Continued development of the Test and Evaluation Master Plan (TEMP) Rev E, Vulnerability Analysis Report (VAR) and Total Ship Survivability Trial (TSST).</p> <p><u>FY06 Plan:</u> Planning and evaluating Acoustic Trials, EM Trials, Hydrodynamic Performance testing, Target Strength Testing and C3I testing. Continue planning for TECHEVAL/OPEVAL. Obtain final concurrence on TEMP Rev E. Continue LFT&E modeling and analysis. Continue planning for TECHEVAL and OPEVAL. Continue development of the Test and Evaluation Master Plan (TEMP), Vulnerability Analysis Report (VAR) and Total Ship Survivability Trial (TSST).</p> <p><u>FY07 Plan:</u> Conduct Total Ship Survivability Test on SSN 775. Conduct Post PSA testing on SSN774, including EM Silencing, Acoustic Trials, Target Strength Verification, and Hydrodynamic trials. Begin conduct of TECHEVAL/OPEVAL.</p>				

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C. PROGRAM CHANGE SUMMARY:			
Funding:	FY 2005	FY2006	FY2007
FY06 President's Budget Controls	109.984	110.322	96.373
FY07 President's Budget Controls	96.828	97.264	115.132
Total Adjustments	-13.156	-13.058	18.759
Summary of Adjustments			
Small Business Innovative Research	-1.585		
Department of Energy Transfer	-0.084		
Warfare Studies	2.500		
Combat Systems Program Trouble Reports	0.000	0.000	-0.900
MICROSAT Reprogramming	-9.000		
FY05 Omnibus Reprogramming	-5.100		
Contract Support Reduction & Respread			-0.413
NWCF CIVPERS Efficiencies			-0.710
Inflation			0.424
Fuel Price Adjustments			0.279
CIVPERS Pay Raise Rate			0.079
R&D VA Class Cost Reduction			20.000
Reduction T&E Req'mts		-11.400	
Congressional Action 1% Reduction		-1.153	
Section 8125		-0.505	
Trusted Foundry (OSD-14)	0.113		
	-13.156	-13.058	18.759
Schedule:			
"Not Applicable"			
Technical:			
"Not Applicable."			

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-5	0604558N/VIRGINIA Class Design Development	1947/VIRGINIA Class HM&E DEVELOPMENT	

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
SCN Line 201300 PE: 0203281N	2570.5	2547.9	2452.1	2499.0	3526.9	3748	3766.5	50227.2	86867.5
SCN Line 201310 PE: 0203281N	0	0	0	0	0	0	0	0	589.2
O&M/N BA-2 1B2B PE: 0204283N	18.6	17.8	30.6	55.2	57.6	57.6	59.9	cont.	cont.
OPN BA-8 Line Item 094200	59.4	143.3	155.9	182.6	210.0	223.1	232.3	cont.	cont.

(U) Related RDT&E

(U) PE 0603561N (Advanced Submarine System Development)

(U) PE 0603570N (Advanced Nuclear Power Systems)

(U) PE 0602121N (Surface Ship Technology)

E. ACQUISITION STRATEGY: *

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing, with Design expected to complete this year, and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN) to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and NGNN became a part of the IPPD process. Future focus will be to complete ship design, continuance of Logistics product development, Technology Insertion and testing for the VIRGINIA Class submarines.

F. MAJOR PERFORMERS: **

1. Electric Boat Corporation, Groton CT - Virginia Class Lead Shipbuilder - Contract Award Date 28 Sept. 1998.
2. Naval Surface Warfare Center, Carderock Division, Bethesda, MD - Research, Development, Test & Evaluation Laboratory
3. Naval Undersea Warfare Center, Newport, RI - Research, Development, Test & Evaluation Laboratory

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Exhibit R-2a, RDTEN Project Justification
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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2006				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604558N/VIRGINIA Class Design Development			1947/VIRGINIA Class HM&E DEVELOPMENT						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Component Development	Contract	EB-2112 Groton, CT	476.919	15.983	10/04	0.000		0.000		0.000	492.909	
Component Development	Contract	EB-2103 Groton, CT	0.000	13.000	11/05	14.187	11/05	30.066	11/06	402.271	939.426	
Component Development	SS/CPFF	EB-4030 Groton, CT	236.311	0.000	11/04	0.000		0.000	11/06	0.000	296.524	
Component Development	PD	SOS/Groton	13.294	0.706		0.000		0.000		0.000	0.000	
Component Development	SS/CPFF	LM-6226	18.015	0.156		0.000		0.000		0.000	18.171	
Component Development	WR	NSWC Carderock MD	453.309	17.605	11/04	29.685	11/05	16.631	11/06	78.969	596.199	
Component Development	WR	NSWC Crane, IA	4.029	0.056	11/04	0.000	11/05	0.000	11/06	0.000	4.085	
Component Development	WR	NUWC Newport, RI	80.698	3.470	11/04	1.182	11/05	2.143	11/06	36.125	123.618	
Component Development	WR	NFPC Phila, PA	6.256	0.000	11/04	0.000	11/05	0.000	11/06	0.000	6.256	
Component Development	Various	Various	197.345	11.393	Various	22.293	Various	2.175	Various	0.000	233.206	
Misc Technology Insertion	Various	Various	25.032	4.151	Various	12.765	Various	18.782	Various	123.105	183.835	
Subtotal Product Development			1,511.208	66.520		80.112		69.797		640.470	2,368.107	
Remarks:												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support												
Software Development												
Integrated Logistics Support	WR	NSWC Carderock MD	0.867	0.000		0.025				0.000	0.892	
Integrated Logistics Support	WR	NAWC Orlando, FL	25.711	0.888		0.000				0.000	26.599	
Integrated Logistics Support	WR	NUWC Newport, RI	2.269	0.342		0.100				0.000	2.711	
Integrated Logistics Support	C/CPAF	SEAPORT D7019 Rockville MD	3.306	0.100	11/05	0.000	11/05	0.000		0.000	3.406	
Integrated Logistics Support	SS/CPFF	EB-2112 Groton, CT	0.000	0.053	11/05	0.038	11/05	0.000		0.000	0.091	
Misc	Various	Misc	0.000	0.000	11/05	0.000	11/05			0.000	0.000	
Award Fees											0.000	
Subtotal Support			32.153	1.383		0.163		0.000		0.000	33.699	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2006		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-5			PROGRAM ELEMENT 0604558N/VIRGINIA Class Design Development			PROJECT NUMBER AND NAME 1947/VIRGINIA Class HM&E DEVELOPMENT						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation	Contract	EB-2112 Groton, CT	5.174	0.442	11/05	0.457	11/05	0.088	11/06	0.000	6.161	
Test & Evaluation	WR	NSWC Carderock MD	42.190	15.627	11/05	3.447	11/05	23.462	11/06	52.267	136.993	
Test & Evaluation	WR	NUWC Newport, RI	24.538	7.552	11/05	7.939	11/05	17.291	11/06	18.821	76.141	
Test & Evaluation	C/CPAF	EG&G C6411 Rockville, MD	7.469	0.000		0.000		0.000		0.000	7.469	
Test & Evaluation	C/CPAF	SEAPORT D7019 Rockville MD	13.084	0.850	11/05	1.141	11/05	0.939	11/06	0.963	16.977	
Test & Evaluation	Various	Miscellaneous	13.361	2.415	11/05	2.742	11/05	2.642	11/06	31.450	52.610	
Subtotal T&E			105.816	26.886		15.726		44.422		103.501	296.351	
Remarks:												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPAF	SEAPORT D7019 Rockville MD	10.678	1.415	11/05	1.063	11/05	0.713	11/06	33.497	47.366	
Program Management Support	C/CPAF	EG&G C6411 Rockville, MD	21.537	0.000		0.000		0.000		0.000	21.537	
Program Management Support	Various	Miscellaneous	19.232	0.624		0.200		0.200		0.000	19.232	
Travel			1.032									
Award Fees		EG&G C6411 Rockville, MD	0.000								0.000	
Subtotal Management			52.479	2.039		1.263		0.913		33.497	88.135	
Remarks:												
Total Cost			1,701.656	96.828		97.264		115.132		777.468	2,788.348	

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Exhibit R-3, Project Cost Analysis
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EXHIBIT R4, Schedule Profile																				DATE: February 2006								
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME													
RDT&E, N / BA-5					0604558N/VIRGINIA Class Design Development										1947/VIRGINIA Class HM&E Development													
Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones									IOC ▲										MS III (FOC) ▲									
Test & Evaluation Milestones																												
Development Test	DT-IIC								DT-IIIE				DT-IIIF								FOT&E (TBD)							
Operational Test	OT-IIC												OPEVAL OT-IIID															
Construction Milestones																												
Ship Authorizations	▲ SSN 780				▲ SSN 781				▲ SSN 782				▲ SSN 783				▲ SSN 784				▲ SSN 785				▲ SSN 786			
Ship Deliveries	▲ SSN 774							▲ SSN 775				▲ SSN 776				▲ SSN 777				▲ SSN 778				▲ SSN 779				▲ SSN 780
Post Shakedown Availability					PSA SSN 774				PSA SSN 775				PSA SSN 776				PSA SSN 777				PSA SSN 778				PSA SSN 779			

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Exhibit R-4a, Schedule Detail				DATE: February 2006			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROJECT NUMBER AND NAME 1947/VIRGINIA Class HM&E Development			
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Operational Test (OT-IIC)	1Q-4Q						
Ship Authorization (SSN 779)							
Ship Delivery (SSN 774)	1Q						
Developmental Test (DT-IIC)	1Q-4Q	1Q					
Ship Authorization (SSN 780)	1Q						
Post Shakedown Availability (PSA SSN 774)		2Q-4Q	1Q				
Ship Delivery (SSN 775)		4Q					
Ship Authorization (SSN 781)		1Q					
Developmental Test (DT-IID)		2Q-4Q	1Q				
Initial Operating Capability (IOC)			1Q				
Post Shakedown Availability (PSA SSN 775)			2Q-4Q	1Q			
Developmental Test (DT-IIIE)		3Q-4Q	1Q-4Q				
Developmental Test (DT-IIIF)			4Q	1Q-3Q			
Ship Authorization (SSN 782)			1Q				
Ship Delivery (SSN 776)			2Q				
Operational Evaluation (OT-IID) (OPEVAL)				3Q-4Q			
Post Shakedown Availability (PSA SSN 776)				2Q-4Q	1Q		
Milestone III (MS III)					3Q		
Full Operational Capability (FOC)					3Q		
Ship Authorization (SSN 783)				1Q			
Ship Delivery (SSN 777)				3Q			
Post Shakedown Availability (PSA SSN 777)					2Q-4Q	1Q	
Ship Authorization (SSN 784)					1Q		
FOT&E (OT-III & DT-III)					TBD	TBD	TBD
Ship Delivery (SSN 778)					3Q		
Ship Authorization (SSN 785)						1Q	
Post Shakedown Availability (PSA SSN 778)						1Q-3Q	
Ship Delivery (SSN 779)						3Q	
Ship Authorization (SSN 786)							1Q
Post Shakedown Availability (SSN 779)							1Q-3Q
Ship Delivery (SSN 780)							3Q

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development			PROJECT NUMBER AND NAME 1950/VIRGINIA Class Combat System Development			
COST (\$ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		48.412	42.228	47.885	47.941	41.706	33.933	40.150
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification: (U) This project encompasses the top level systems development, test and integration into the ship of the VIRGINIA Class Submarine C3I System (formerly referred to as Combat Systems), which includes multiple subsystems. The scope of the system is expanded from Sonar and Combat Control subsystems to include AN/BLQ-10 Electronic Support (ES) Measures, Exterior Communications, Submarine Regional Warfare System, Navigation, Total Ship Monitoring, Imaging, Tactical Acoustic Communications, Radar, Interior Communications, Tactical Support Devices, Fiber Optic Cable Subsystem, and Special Purpose Subsystems, such as Battle Force Team Trainer and others. VIRGINIA Class Submarine specific development efforts include requirements definition, software, hardware development, software/hardware test, prototype production, and electronic integration as well as physical integration into the platform.

(U) The VIRGINIA Class Submarine implementation approach is based on Open System, Commercial-off-the-Shelf (COTS) Non-Developmental Items or subsystems. The program leverages on-going subsystems developments or developing new subsystems where needed to satisfy VIRGINIA Class requirements. The recurring cost of VIRGINIA Class Submarine C3I Systems is being reduced to meet the program's affordability goals. Modifications to many subsystems must be developed to: (1) reduce the shipbuilding and construction recurring costs through the use of COTS components; (2) use proven computer technologies to evolve to an Open System design; (3) enhance capabilities to support expanded operational requirements, reduced manning, and reduced shipboard component footprint.

(U) To meet the collective future threat, the submarine force must operate as effectively in littoral regions as it traditionally has in open ocean. Close coordination with surface battle groups and airborne units is essential to mission accomplishment. To meet the VIRGINIA Class Submarine mission, the following capabilities are provided by the VIRGINIA Class Submarine C3I System: (1) Passive and Active detection of multiple contacts, including early warning threat determination through processing and analysis of sensor data; (2) classification of sensor data for the purpose of identifying contacts; (3) localization (tracking) of contacts through target motion analysis; (4) preset, launch, and control of weapons and countermeasures; (5) improved communication and connectivity with other battle group elements, airborne units, and special operations forces; (6) incorporation of vertical launch system to enhance strike warfare; and (7) more effective covert surveillance through video imaging with onboard digital enhancement capabilities, and improved electronic warfare analysis capabilities.

(U) The FY04/05 budget submit expanded the original definition of the F1950 project mission to include an ongoing post VIRGINIA Class TECH/OPEVAL RDT&E effort to continue the development of VIRGINIA Unique Combat System Improvements. The VIRGINIA Class C3I will continue to leverage backfit communities efforts, but even with "common" systems that the Navy has developed there will continue to be VIRGINIA Unique capability improvements required. The FY08 and out funding identified is for those efforts.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME 1950/VIRGINIA Class Combat System Development

B. Accomplishments/Planned Program --- C3I Systems Engineering

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	38.238	29.029	32.946	
RDT&E Articles Quantity				

1. (U) FY 2005 ACCOMPLISHMENTS:

• (U) (\$38.238M) Continued development of high priority ship safety/self-protect deficiencies identified during integration and lead ship sea test efforts. Began the detailed planning for C3I System/subsystems testing as part of VIRGINIA Class TECH/OPEVAL. Continued the Voyage Management System and information assurance implementation for NPES system/subsystems. The FY 2005 controls included \$18.2M of Congressional Plus-Up funding for the following: \$1.5M for Information Assurance; \$8.0M for Common Submarine Radio Room; \$2M for NTDPs Mates; \$1.7M for Shipboard Wireless LAN; \$3.5M for COTS Web Enabled Tool kit, and \$1.5M for Enhanced Open System Module.

2. (U) FY 2006 PLAN:

• (U) (\$29.029M) Continue development of high priority ship safety/self-protect deficiencies identified during integration and lead ship sea test efforts. Continue the detailed planning for C3I System/subsystems testing as part of VIRGINIA Class TECH/OPEVAL. Continue the Voyage Management System and information assurance implementation for NPES system/subsystems.

3. (U) FY 2007 PLAN:

• (U) (\$32.946M) Continue development of high priority ship safety/self-protect deficiencies identified during integration and lead ship sea test efforts. Conduct C3I System/subsystems testing as part of VIRGINIA Class TECH/OPEVAL. Complete the Voyage Management System implementation. Continue the information assurance implementation for NPES system/subsystems.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 13 of 31)

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2006																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME 1950/VIRGINIA Class Combat System Development																	
B. Accomplishments/Planned Program (Cont.) --- Sonar Combat Control and Architecture Subsystems																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th><th style="width: 15%;">FY 08</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">10.174</td><td style="text-align: center;">13.199</td><td style="text-align: center;">14.939</td><td style="text-align: center;">11.375</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 05	FY 06	FY 07	FY 08	Accomplishments/Effort/Subtotal Cost	10.174	13.199	14.939	11.375	RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost	10.174	13.199	14.939	11.375															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px;"><p><u>1. (U) FY 2005 ACCOMPLISHMENTS:</u></p><ul style="list-style-type: none">• (U) (\$9.599M) Continued development of high priority S/CC/A ship safety/self-protect deficiencies identified during integration and lead ship sea test efforts. Began the detailed planning for S/CC/A subsystems testing as part of VIRGINIA Class TECH/OPEVAL.<p><u>2.. (U) FY 2006 PLAN:</u></p><ul style="list-style-type: none">• (U) (\$13.199M) Continue development of high priority S/CC/A ship safety/self-protect deficiencies identified during integration and lead ship sea test efforts. Continue the detailed planning for S/CC/A subsystems testing as part of VIRGINIA Class TECH/OPEVAL. Begin the development of SCCA System Improvements to maintain VIRGINIA Class Commonality to backfit fleet.<p><u>3. (U) FY 2007 PLAN:</u></p><ul style="list-style-type: none">• (U) (\$14.939M) Continue development of high priority S/CC/A ship safety/self-protect deficiencies identified during integration and lead ship sea test efforts. Conduct S/CC/A subsystems testing as part of VIRGINIA Class TECH/OPEVAL. Continue the development of SCCA System Improvements to maintain VIRGINIA Class Commonality to backfit fleet.</div>																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2006																																	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME 1950/VIRGINIA Class Combat System Development																																		
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 35%;">Funding:</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>FY06 President's Budget Controls</td> <td style="text-align: right;">49.426</td> <td style="text-align: right;">42.871</td> <td style="text-align: right;">40.130</td> </tr> <tr> <td>FY07 President's Budget Controls</td> <td style="text-align: right;">48.412</td> <td style="text-align: right;">42.228</td> <td style="text-align: right;">47.885</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-1.014</td> <td style="text-align: right; border-top: 1px solid black;">-0.643</td> <td style="text-align: right; border-top: 1px solid black;">7.755</td> </tr> <tr> <td colspan="4" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Combat System PTR Corrections</td> <td></td> <td></td> <td style="text-align: right;">7.800</td> </tr> <tr> <td> Various</td> <td style="text-align: right;">-1.014</td> <td style="text-align: right;">-0.643</td> <td style="text-align: right;">-0.045</td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right;">-1.014</td> <td style="text-align: right;">-0.643</td> <td style="text-align: right;">7.755</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule: "Not Applicable"</p> <p style="margin-top: 40px;">Technical: "Not Applicable"</p>					Funding:	FY 2005	FY 2006	FY 2007	FY06 President's Budget Controls	49.426	42.871	40.130	FY07 President's Budget Controls	48.412	42.228	47.885	Total Adjustments	-1.014	-0.643	7.755	Summary of Adjustments				Combat System PTR Corrections			7.800	Various	-1.014	-0.643	-0.045	Subtotal	-1.014	-0.643	7.755
Funding:	FY 2005	FY 2006	FY 2007																																	
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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2006		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development			PROJECT NUMBER AND NAME 1950/VIRGINIA Class Combat System Development				

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY2010	FY2011	To Complete	Total Cost
SCN Line 201300 PE: 0203281N	2570.5	2547.9	2452.1	2499.0	3526.9	3748.0	3766.5	50227.2	86867.5
SCN Line 201310 PE: 0203281N	0	0	0	0	0	0	0	0	589.2
O&M/N BA-2 1B2B PE: 0204283N	18.6	17.8	30.6	55.2	57.6	57.6	59.9	cont.	cont.
OPN BA-8 Line Item 094200	59.4	143.3	155.5	182.6	210.0	223.1	232.3	cont.	cont.

(U) Related RDT&E
 (U) PE 0603504N (Advanced Submarine Combat Systems Development)
 (U) PE 0603561N (Advanced Submarine System Development)
 (U) PE 0603562N Submarine Tactical Warfare Systems)
 (U) PE 0603570N (Advanced Nuclear Power Systems)
 (U) PE 0604503N (Submarine System Equipment Development)
 (U) PE 0604574N (Navy Tactical Computer Resorses)
 (U) PE 0604777N (Navigation/ID Systems)
 (U) PE 0101226N (Submarine Acoustic Warfarte Development)
 (U) PE 0604562N (Submarine Tactical Warfare System)
 (U) PE 0604524N (Submarine Combat System)

E. ACQUISITION STRATEGY: *

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing, with Design expected to complete this year, and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN) to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and NGNN became a part of the IPPD process. The Program Office awarded a multi-year contract for the FY04-08 ships. Future focus will be to complete ship design, continuance of Logistics product development, Technology Insertion and testing for the VIRGINIA Class submarines.

F. MAJOR PERFORMERS: **

Lockheed Martin, Manassas, Virginia. C3I Prime Contractor, Development and Limited Production of the S/CC/A Subsystems, Contract Award Date 24 April 1996.

Naval Undersea Warfare Center, Newport, Rhode, Island, Technical Direction Agent for all Virginia Class Electronics.

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Exhibit R-3 Cost Analysis (page 1)							DATE:		February 2006				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604558N/VIRGINIA Class Design Development				1950/VIRGINIA Class Combat System Development						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
C3I Prime Contract E&MD Total	C/CPAF	Lockheed Manassas, VA	258.524	1.003	Various	0.099	Various	0.056	Various	0.000	259.682	259.682	
C3I Prime Contract E&MD Award Fee	C/CPAF	Lockheed Manassas, VA	7.871	0.150	Various	0.010	Various	0.006	Various	0.000	8.037	8.037	
C3I Prime Contract Post Delivery	C/FFP	Lockheed Manassas, VA	21.895	0.477	Various	1.297	Various	0.642	Various	0.000	24.311	24.311	
ARCI Prime Contract	SS/CPAF	Lockheed Manassas, VA	2.300	3.833	Various					0.000	6.133	6.133	
Unique Virginia Class Improvments	TBD	Various/TBD	0.000			4.158	11/05	4.706	11/06	91.794	100.658	100.658	
Advanced Display Sys (AN/UYQ-70)	SS/CPIF	Lockheed St. Paul, MN	26.921	0.500	03/05	0.845	11/05	0.956	11/06	7.887	37.109	37.109	
Multi-Purpose Processor	SS/CPIF	Digital Sys Fairfax, VA	41.449								41.449	41.449	
Multi-Purpose Processor	SS/CPIF	Lockheed Manassas, VA	1.755								1.755	1.755	
Photonics	C/CPIF	Kollmorgen Northhampton, M	31.762	0.920	11/04	2.706	11/05	2.136	11/06	8.318	45.842	45.842	
Non-Penetrating Periscope	C/CPIF	Kollmorgen Northhampton, M	4.060								4.060	4.060	
Electronic Support Measures	C/FFP	Lockheed Syracuse, NY	38.067							6.410	44.477	44.477	
Platform Integration	SS/CPFF	EB Corp Groton, CT	29.721	1.273	Various	1.400	11/05	1.000	11/06	13.823	47.217	47.217	
Platform Integration	SS/CPFF	NNews Shipbuilding NNews,	3.065								3.065	3.065	
Integrated Electronic Mast	SS/CPIF	Goleta Portsmouth, RI	8.897								8.897	8.897	
Tactical Simulator	SS/CPFF	Goleta Portsmouth, RI	2.750								2.750	2.750	
High Frequency Sail Array	SS/CPFF	Applied Research Austin, TX	3.273								3.273	3.273	
Navigation/Radar	SS/CPFF	Sperry Corp Charlottesville, VA	6.153								6.153	6.153	
Technology Refreshment	Various	Various/TBD	10.765							9.590	20.355		
Open System Module	SS/CPFF	UNISYS Corp St. Paul, MN	2.500								2.500	2.500	
Technical Direction Agent	N/A	NUWC Newport, RI	212.773	5.996	Various	6.000	Various	6.500	Various	48.466	279.735		
Technology Refreshment/Info. Assur.	C/CPFF	Progeny Systems,Manassas,	18.547	4.729	Various	2.000	11/05	1.000	11/06	6.372	32.648		
NTDPS Network Centric Architecture	SS/CPFF	DSR, Fairfax, Virginia	3.760	0.500	Various						4.260		
Systems Engineering	N/A	NSWC Cardock, MD	4.775	0.473		0.325		0.330		2.880	8.783		
Systems Engineering	N/A	NSWC Crane, IN	3.722								3.722		
Systems Engineering	N/A	SSC Charleston, SC	2.333								2.333		
Systems Engineering	N/A	SSC San Diego, CA	2.545								2.545		
Systems Engineering	N/A	NUWC Keyport, WA	9.077	0.172	11/04	0.176	11/05	0.180	11/06	9.285	18.890		
Miscellaneous	Various	Various	70.937	27.147	Various	16.292	Various	23.032	Various	87.308	224.716		
Subtotal Product Development			830.197	47.173		35.308		40.544		292.133	1,245.355		
Remarks:													
Development Support			0.000								0.000		
Software Development			0.000								0.000		
Training Development			0.000								0.000		
Integrated Logistics Support			0.000								0.000		
Configuration Management			0.000								0.000		
Technical Data			0.000								0.000		
GFE			0.000								0.000		
Award Fees			0.000								0.000		
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000		
Remarks:													
UNCLASSIFIED							Exhibit R-3, Project Cost Analysis						

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Exhibit R-3, Project Cost Analysis

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2006		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROGRAM ELEMENT 0604558N/VIRGINIA Class Design Development				PROJECT NUMBER AND NAME 1950/VIRGINIA Class Combat System Development				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation			0.000								0.000	
Operational Test & Evaluation			0.000								0.000	
Test & Evaluation	Various	Various	0.000			4.130	Various	4.712	Various	1.500	10.342	
Test Assets			0.000								0.000	
Tooling			0.000								0.000	
GFE			0.000								0.000	
Award Fees			0.000								0.000	
Subtotal T&E			0.000	0.000		4.130		4.712		1.500	10.342	
Remarks:												
Contractor Engineering Support			0.000								0.000	
Contractor Support Services/ETS	C/CPAF	EG&G Rockville, MD	7.263	1.239	Various	2.790	Various	2.629	Various	22.868	36.789	
Contractor Support Services/ETS	C/CPAF	EG&G Rockville, MD	14.406								14.406	
CSS/ETS Award Fee	C/CPFF	EG&G Rockville, MD	1.195								1.195	
Contractor Support Services/ETS	C/CPFF	EG&G Rockville, MD	8.857								8.857	
Contractor Support Services/ETS	C/CPFF	SWL Inc. Vienna, VA	5.705								5.705	
Contractor Support Services/ETS	C/CPFF	American Sys Chantilly, VA	2.099								2.099	
Miscellaneous	Various	Various	4.765							2.143	6.908	
Program Management Support			0.000								0.000	
Travel			0.000								0.000	
Subtotal Management			44.290	1.239		2.790		2.629		25.011	75.959	
Remarks:												
Total Cost			874.487	48.412		42.228		47.885		318.644	1,331.656	
Remarks:												

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EXHIBIT R4, Schedule Profile																	DATE:											
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-5					0604558N/VIRGINIA Class Design Development												1950/VIRGINIA Class Combat Systems Development											
Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones									IOC △									MS III (FOC) △										
Test & Evaluation Milestones																												
Development Test	DT-IIB								DT-IIIE				DT-IIIF								FOT&E (TBD)							
					DT-IIID																							
Operational Test	OT-IIC																OPEVAL OT-IIID											
Construction Milestones																												
Ship Authorizations	▲ SSN 780				▲ SSN 781				△ SSN 782				△ SSN 783				△ SSN 784			△ SSN 785				△ SSN 786				
Ship Deliveries	▲ SSN 774							△ SSN 775		△ SSN 776					△ SSN 777			△ SSN 778			△ SSN 779				△ SSN 780			
Post Shakedown Availability								PSA SSN 774			PSA SSN 775			PSA SSN 776			PSA SSN 777			PSA SSN 778			PSA SSN 779					

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Exhibit R-4, Schedule Profile
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CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2006		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROJECT NUMBER AND NAME 1950/VIRGINIA Class Combat System Development			
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Operational Test (OT-IIC)	1Q-4Q						
Ship Authorization (SSN 779)							
Ship Delivery (SSN 774)	1Q						
Developmental Test (DT-IIC)	1Q-4Q	1Q					
Ship Authorization (SSN 780)	1Q						
Post Shakedown Availability (PSA SSN 774)		2Q-4Q	1Q				
Ship Delivery (SSN 775)		4Q					
Ship Authorization (SSN 781)		1Q					
Developmental Test (DT-IID)		2Q-4Q	1Q				
Initial Operating Capability (IOC)			1Q				
Post Shakedown Availability (PSA SSN 775)			2Q-4Q	1Q			
Developmental Test (DT-IIE)		3Q-4Q	1Q-4Q				
Developmental Test (DT-IIF)			4Q	1Q-3Q			
Ship Authorization (SSN 782)			1Q				
Ship Delivery (SSN 776)			2Q				
Operational Evaluation (OT-IID) (OPEVAL)				2Q-4Q			
Post Shakedown Availability (PSA SSN 776)				2Q-4Q	1Q		
Milestone III (MS III)					3Q		
Full Operational Capability (FOC)					3Q		
Ship Authorization (SSN 783)				1Q			
Ship Delivery (SSN 777)				3Q			
Post Shakedown Availability (PSA SSN 777)					2Q-4Q	1Q	
Ship Authorization (SSN 784)					1Q		
FOT&E (OT-III & DT-III)					TBD	TBD	TBD
Ship Delivery (SSN 778)					3Q		
Ship Authorization (SSN 785)						1Q	
Post Shakedown Availability (PSA SSN 778)						1Q-3Q	
Ship Delivery (SSN 779)						3Q	
Ship Authorization (SSN 786)							1Q
Post Shakedown Availability (SSN 779)							1Q-3Q
Ship Delivery (SSN 780)							3Q

CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development				PROJECT NUMBER AND NAME 3062/Submarine Multi-Mission Team Trainer			
COST (\$ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		3.686	2.575	6.563	6.424	2.751	2.787	2.801
RDT&E Articles Qty								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: To achieve desired submarine force readiness levels, it is necessary to construct highly sophisticated shorebased Combat System Team Trainers capable of training personnel in all aspects of submarine approach, attack and surveillance operations in a controlled, simulated environment. The Combat Control System (CCS) MK 1 and CCS MK 2 are installed on SSN and SSGN Class submarines, and there are currently plans to further upgrade these systems with the next H/W and S/W revisions which provide enhanced warfighter capabilities. The Tactical Acoustic Rapid COTS (commercial-off-the-shelf) Insertion (ARCI) Phased upgrades are also being installed with the next revision which provides enhanced warfighter capabilities. These CCS (AN/BYG-1) and ARCI (AN/BQQ-10) upgrades directly impact shore based Team Trainers. In addition, the Advanced Processing Builds (APB), which feed technology insertion into the CCS/Acoustic development, also impact the trainers. The Submarine Multi-Mission Team Trainer (SMMTT) supports operator, employment, strike, and Battle Group training for enlisted and officer pipelines. The SMMTT provides individual operators and combat teams the opportunity to train ashore, prior to, and between deployments. The shore based training provides a means of maintaining team proficiency in stand alone or in combined team mode prior to ship deployment.								

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Exhibit R-2a, RDTEN Project Justification

(Exhibit R-2a, page 21 of 31)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2006																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME 3062/Submarine Multi-Mission Team Trainer																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;"></th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td style="text-align: center;">3.686</td><td style="text-align: center;">2.575</td><td style="text-align: center;">6.563</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>							FY 05	FY 06	FY07	Accomplishments/Effort/Subtotal Cost		3.686	2.575	6.563	RDT&E Articles Quantity				
		FY 05	FY 06	FY07															
Accomplishments/Effort/Subtotal Cost		3.686	2.575	6.563															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; min-height: 80px; margin-top: 10px;"></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;"></th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>							FY 05	FY 06	FY07	Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000	RDT&E Articles Quantity				
		FY 05	FY 06	FY07															
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000															
RDT&E Articles Quantity																			
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		FY 05	FY 06	FY07															
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000															
RDT&E Articles Quantity																			
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME 3062/Submarine Multi-Mission TeamTrainer	
C. PROGRAM CHANGE SUMMARY:			
Funding:	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 06 Pres Controls)	3.704	2.614	2.674
Current BES/DON Budget: (FY07 Pres Controls)	3.686	2.575	6.563
Total Adjustments	-0.018	-0.039	3.889
Summary of Adjustments			
Misc Adjustments	-0.018	-0.039	-0.064
SMMTT3 SEAWOLF			3.953
Subtotal	-0.018	-0.039	3.889
Schedule:			
"Not Applicable."			
Technical:			
"Not Applicable."			

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EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2006		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development			PROJECT NUMBER AND NAME 3062/Submarine Multi-Mission Team Trainer				
D. OTHER PROGRAM FUNDING SUMMARY:									
<u>Line Item No. & Name</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
566100, Submarine Training Device Modification	30.2	24.8	17.1	14.3	17.7	13.1	13.5	0.0	130.7
 E. ACQUISITION STRATEGY: *									
The SMMTT program phase 3 software development is accounted for in this RDT&E line. All production kits and software are procured in OPN PE 0804731N BLI 566100.									
 F. MAJOR PERFORMERS: **									
NSWCCD									

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Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2006				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N /BA-5			0604558N/VIRGINIA Class Design Development			3062/Submarine Multi-Mission Team Trainer						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
Component Development	WX	NSWCCD, Bethesda, MD		3.191	various	2.310	various	6.163	various	13.163	24.827	N/A
Component Development	FR	UT Austin ARL		0.495	12/04	0.265	various	0.400	various	1.600	2.760	2.760
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	3.686		2.575		6.563		14.763	27.587	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 25 of 31)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: FEBRUARY 2006				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N /BA-5			0604558N/VIRGINIA Class Design Development			3062/Submarine Multi-Mission Team Trainer						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	3.686		2.575		6.563		14.763	27.587	
Remarks:												

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EXHIBIT R4, Schedule Profile																								DATE: FEBRUARY 2006								
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N/BA-5										0604558N/VIRGINIA Class Design Development										3062/Submarine Multi-Mission Team Trainer												
Fiscal Year					2005				2006				2007				2008				2009				2010				2011			
					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Simulation Plan Development - Updates					▲			▲																								
Prime Item Development Specification (PIDS) - Updates					▲	▲																										
System Requirements Specification (SRS) - Updates						▲		▲																								
Interface Requirements Specification (IRS) - Updates						▲		▲																								
Interface Design Development						▲						△																				
Software Development							▲	▲								△																
Software Testing									▲		△							△														
EDM Delivery						▲						△																				
APB Upgrades								▲		▲		△		△		△		△		△		△		△		△		△		△		△
SSN 21 Simulation Plan Development Additions													△			△																
SSN 21 Prime Item Dev. Spec. (PIDS) Additions													△			△																
SSN 21 System Requirements Specification (SRS) Additions													△			△																
SSN-21 Interface Req'ts Specification (IRS) Additions														△				△														
SSN-21 Interface Design Development														△				△														
SSN-21 Software Development															△						△											
SSN-21 Software Testing																		△			△											
SSN-21 EPM Delivery																		△			△											

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 28 of 31)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2006																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME Project Unit (PU) No. and Name: Congressional Plus-Ups : VARIOUS																	
CONGRESSIONAL PLUS-UPS:																			
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 25%;"></td><td style="width: 10%; text-align: center;">FY 06</td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 35%;"></td></tr><tr><td>Identify Project Number: 1950C</td><td></td><td></td><td></td><td></td></tr><tr><td>Title: ShipMATES integrated learning environment</td><td style="text-align: center;">2.400</td><td></td><td></td><td></td></tr></table> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;">Provide a brief description of the Congressional Plus-Up. Complete development of NTDPs Build #3, CNO's Revolution in Training (Task Force Excel), which brings a component of SEA WARRIOR, the Navy's Shipboard Integrated Learning Environment to sea; integrate and test NTDPs Build #4, (Advanced Shipboard Training Module) and the Personnel module developed under the Submarine Non-tactical Automated Distribution Information System (SNADIS). Train the crews on NTDPs operation and update the configurations of fielded Maintenance, Administration Training, Education, and Support (MATES) Applications within NTDPs based on changes in commercial technologies or fleet requirements.</div>						FY 06				Identify Project Number: 1950C					Title: ShipMATES integrated learning environment	2.400			
	FY 06																		
Identify Project Number: 1950C																			
Title: ShipMATES integrated learning environment	2.400																		
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 25%;"></td><td style="width: 10%; text-align: center;">FY 06</td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 35%;"></td></tr><tr><td>Identify Project Number: 2887C</td><td></td><td></td><td></td><td></td></tr><tr><td>Title: Network centric capability Technology Insertion</td><td style="text-align: center;">2.800</td><td></td><td></td><td></td></tr></table> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;">Provide a brief description of the Congressional Plus-Up. Research to establish and extend a technology insertion program and promote enhanced commonality with other class submarines. Complete the design, test and evaluation of the Photonics Mast Workstation.</div>						FY 06				Identify Project Number: 2887C					Title: Network centric capability Technology Insertion	2.800			
	FY 06																		
Identify Project Number: 2887C																			
Title: Network centric capability Technology Insertion	2.800																		
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 25%;"></td><td style="width: 10%; text-align: center;">FY 06</td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 35%;"></td></tr><tr><td>Identify Project Number: 9845N</td><td></td><td></td><td></td><td></td></tr><tr><td>Title: Sub command and control systems lower power</td><td style="text-align: center;">1.500</td><td></td><td></td><td></td></tr></table> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;">Provide a brief description of the Congressional Plus-Up. Research Total Ownership Cost reduction technology insertion opportunities with Submarine Command and Control System electronics. Conduct research in engineering design alternatives and identify specific viable candidates to reduce the production and life cycle cost of the low power advanced technology electronics.</div>						FY 06				Identify Project Number: 9845N					Title: Sub command and control systems lower power	1.500			
	FY 06																		
Identify Project Number: 9845N																			
Title: Sub command and control systems lower power	1.500																		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2006																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME Project Unit (PU) No. and Name: Congressional Plus-Ups : VARIOUS																	
CONGRESSIONAL PLUS-UPS:																			
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	FY 06																		
Identify Project Number: 9846N																			
Title: Submarine common electronics replacement	1.700																		
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 25%;"></td><td style="width: 10%; text-align: center;">FY 06</td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 35%;"></td></tr><tr><td>Identify Project Number: 9847N</td><td></td><td></td><td></td><td></td></tr><tr><td>Title: Submarine COTS Web enabled Service Tool kit</td><td style="text-align: center;">2.000</td><td></td><td></td><td></td></tr></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Provide a brief description of the Congressional Plus-Up. The COTS Web Enabled Service Toolkit (CWEST) will enable the submarine combat system to interface with Meteorological Oceanographic (METOC) services using COTS framework and web services. The COTS Framework and web services provide the interfaces for Data Oriented Services (DOS) and User Facing Services (UFS) in accordance with FORCEnet and TFW requirements. The METOC services will be provided in support of acoustic environmental needs for all SONAR applications, and will serve as a model for future SONAR off-hull connectivity requirements.</div>						FY 06				Identify Project Number: 9847N					Title: Submarine COTS Web enabled Service Tool kit	2.000			
	FY 06																		
Identify Project Number: 9847N																			
Title: Submarine COTS Web enabled Service Tool kit	2.000																		
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 25%;"></td><td style="width: 10%; text-align: center;">FY 06</td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 35%;"></td></tr><tr><td>Identify Project Number: 9848N</td><td></td><td></td><td></td><td></td></tr><tr><td>Title: Surface Ship open architecture tech insertion</td><td style="text-align: center;">1.700</td><td></td><td></td><td></td></tr></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Provide a brief description of the Congressional Plus-Up. Design and implement a standards compliant middle-ware for surface combat systems based on submarine implementation. Develop an integration approach for an existing submarine system working with the open architecture computing environment community. This effort will identify specific technical approaches that could be employed by PEO IWS to address interoperability and commonality opportunities which may be realized through compliance with the Navy OACE (open architecture computing environment). The focus is to evaluate the standards that are proposed in the OACE initiative and develop a plan that permits the large base OA systems developed by the Submarine community to use and interoperate with the OACE approved standard</div>						FY 06				Identify Project Number: 9848N					Title: Surface Ship open architecture tech insertion	1.700			
	FY 06																		
Identify Project Number: 9848N																			
Title: Surface Ship open architecture tech insertion	1.700																		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2006																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604558N/VIRGINIA Class Design Development	PROJECT NUMBER AND NAME Project Unit (PU) No. and Name: Congressional Plus-Ups : VARIOUS																	
CONGRESSIONAL PLUS-UPS:																			
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	FY 06																		
Identify Project Number: 9849N																			
Title: VA Class sub tech insertion amd cost reduction	4.600																		
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	FY 06																		
Identify Project Number: 1947C																			
Title: Large Aperture Bow (LAB) Array	1.800																		
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	FY 06																		
Identify Project Number: 1947C																			
Title: Multi-Mission Module (MMM)	15.000																		

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